4.9 HYDROLOGY and WATER QUALITY

This section assesses potential impacts related to flooding, stormwater runoff, water quality and dam inundation.

4.9.1 Setting

a. Watershed and Water Resources.

Surface Water Resources. There are two main watersheds within the County: the Upper Stanislaus River Watershed and the Upper Tuolumne River Watershed. The Stanislaus River is an approximately 65-mile long waterway that flows from the Sierra Nevada to the San Joaquin River in the eastern part of the Central Valley and is one of the largest tributaries of the San Joaquin River. The Stanislaus River Watershed covers an area of approximately 904 square miles. The river originates as North, Middle, and South Forks in Stanislaus National Forest in the Sierra Nevada Mountains. The confluence of the North and Middle Forks northeast of New Melones Lake forms the Stanislaus River proper. The South Fork joins the river within New Melones Lake. The North Fork forms the northwestern boundary of the County.

The Tuolumne River headwaters originate in the High Sierra at the eastern edge of Tuolumne Meadows in Yosemite National Park. The watershed area covers approximately 1,533 square miles. The Tuolumne River flows through Yosemite National Park and into Hetch Hetchy Valley, which was flooded behind the O'Shaughnessy Dam in 1923, and then into the Stanislaus National Forest. At the O'Shaughnessy Dam, approximately 33% of the river's flow is diverted to the San Francisco Bay Area, where it provides drinking water for nearly 2.5 million people.

Groundwater Resources. The County is located within the foothills and higher elevations of the Sierra Nevada where the subsurface material consists primarily of impermeable granitic and greenstone bedrock which can result in a low groundwater yield. The California Department of Water Resources (DWR) Bulletin 118 provides a detailed description of groundwater basins in California, but the DWR Bulletin does not identify or describe any groundwater basins in the County (Tuolumne Utilities District, June 2011).

b. Water Quality. The quality of surface and ground water within the County is affected by land uses within the watershed and the composition of subsurface geologic materials. Pollution can enter a water body from point sources (such as an industrial site) or from nonpoint sources over a broad area such as runoff from a city or agricultural area. The State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB) regulate water quality in surface and ground water bodies. The County is under the jurisdiction of the Central Valley RWQCB, which is responsible for implementation of State and Federal water quality protection guidelines within Tuolumne County.

The Tuolumne County Water Quality Plan (Plan) was adopted by the Board of Supervisors on February 13, 2007 to establish a watershed-based planning framework. The Plan was identified as a need by County staff to address storm water runoff and non-point source pollution impacts on water quality within Tuolumne County's watersheds to improve the quality of the County's water resources over a 20-year planning horizon. Urban development projects,

grading, failing septic systems, marina operations, mine site runoff, certain agricultural and forestry practices, and public works projects all have cumulative effects on water quality in Tuolumne County. Conditions or mitigating measures, best management practices, and monitoring programs were developed as part of the Plan as a first step in addressing cumulative impacts to water quality. The Plan focused on three principal non-point sources of water pollution water quality concerns: pathogens and nutrients, urban contaminants (leaking underground storage tanks, disposal practices, and pH uncertainties), and erosion and sedimentation. Although several new programs were adopted under this Plan, their subsequent implementation is contingent on new funding sources. In addition, without a stable funding source, the implementation of the Plan and associated improvement projects are ultimately grant driven. The County's continued active pursuit of grant funding is critical to the success of the Plan and achieving long-term goals.

Surface Water Quality. Tuolumne County is dominated by urban, agricultural, and public recreational uses. Stormwater flowing over urban and agricultural areas carries pollutants through natural drainage systems or man-made storm drain facilities to a body of surface water. Such discharges are referred to as "non-point" sources because the pollutants are found everywhere. These discharges are mostly unregulated, resulting in untreated pollutants entering rivers and lakes. Pollution from agricultural areas may include fertilizers, herbicides, and pesticides. Pollutant sources in urban areas include parking lots, landscaped areas, and construction sites and contaminants may include sediments, hydrocarbons, metals, pesticides, bacteria, and trash.

Surface water quality in the region is generally considered very good. For example, most of the water from the Tuolumne River is usable for human consumption with disinfection alone, although additional treatment is required by law (Tuolumne-Stanislaus IRWM Plan, August 2013). However, there are several impaired water bodies based on environmental standards within the County. The SWRCB, in compliance with the Clean Water Act (CWA), Section 303(d), has identified seven impaired water bodies in Tuolumne County (see Table 4.9-1).

Table 4.9-1
Tuolumne County Water Bodies Listed as Impaired

Water Body	Impairment Constituent
Curtis Creek	Escherichia coli (E. coli)
Don Pedro Lake	Mercury
Hetch Hetchy Reservoir	Mercury
Sullivan Creek (from Phoenix Reservoir to Don Pedro Lake, Tuolumne County)	Escherichia coli (E. coli)
Tuolumne River, Lower (Don Pedro Reservoir to San Joaquin River)	Chlorpyrifos, Diaznon, Group A Pesticides, Mercury, Temperature, Unknown Toxicity
Woods Creek	Escherichia coli (E. coli)

Source: California Environmental Protection Agency (CalEPA), State Water Resources Control Board, 2010 Integrated Report, 303(D) Listed Waters. http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

The majority of the surface water quality issues identified within the County can be linked back to current or historical land use practices. Historical mining within the area largely affected the

landscape and water quality within the County. Gold mining within the County has been linked to the 303(d) listing of two of its water bodies (Don Pedro Lake and Hetch Hetchy Reservoir) for mercury contamination. Septic systems, livestock grazing and water based recreation activities have been associated with increased contamination of pathogens such as E. coli. There are three 303(d) listed waterbodies within the County for E. coli contamination: Curtis Creek, Sullivan Creek, and Woods Creek (Tuolumne-Stanislaus IRWM Plan, August 2013).

Groundwater Quality. Groundwater quality throughout the County has generally been found to be good. Groundwater mostly contains naturally-occurring constituents such as iron and manganese (Tuolumne Utilities District, June 2011). Other sources of groundwater contamination are improperly placed and maintained septic systems as well as leaking underground storage tanks (LUSTs). Many septic systems were installed prior to the requirement of a soil investigation and health study to demonstrate long term feasibility of the septic system prior to its installation; thus, the areas of most concern are generally associated with older residences where septic systems were installed prior to the passing of these regulations. Septic system contamination leads to bacteriological contamination within groundwater wells that can become problematic for domestic use of local groundwater. LUSTs are an issue throughout the United States due to their presence at nearly every gas station as well as in other locations (Tuolumne-Stanislaus IRWM Plan, August 2013).

c. Flood Hazards. The County is located on the western slope of the Sierra Nevada Mountains and is subject to moderate annual rainfall. An area's potential for flooding is largely defined by its physical geography. Tuolumne County has many waterways consisting of ephemeral drainages, intermittent streams, perennial streams and rivers. Most of the major waterways in Tuolumne County are within deeply defined drainage channels, capable of containing flood waters. However, in some areas the drainage channels are less defined and are not capable of containing flood waters (Tuolumne County General Plan Safety Element; Tuolumne County Multi-Jurisdiction Hazard Mitigation Plan, 2004).

There have been examples of localized flash flooding, particularly where development has occurred in the watersheds without adequate improvement of drainage systems to accommodate the reduced infiltration and increased runoff that usually results. This typically occurs in urban areas where there has been minor floodplain formation, or where natural runoff is blocked by inadequate culverts or other obstacles. These flash flooding events are directly related to rainfall events, usually during the winter or spring rainy season (Tuolumne County, 2004).

The primary indicator of potential flooding is the presence of a floodplain as defined by the Federal Emergency Management Agency (FEMA). A floodplain is defined by FEMA as the area of land adjacent to the water course that may be submerged by flood water during a 100-year (1 percent annual chance occurrence) storm. These "special flood hazard areas" are defined on FEMA Flood Insurance Rate Maps (FIRM). The County's most recent Digital FIRMs, which became effective April 16, 2009, define the special flood hazard areas within the County.

d. Dam Inundation. There are a substantial number of large and small dams throughout Tuolumne County. These range from dams creating large reservoirs intended to provide

sources for irrigation, water supply, or power generation, to smaller impoundments which are part of water distribution or treatment systems or intended to provide a recreational amenity for visitors or residents (Tuolumne County Multi-Jurisdiction Hazard Mitigation Plan, 2004). Large dams are mostly located along the Tuolumne and Stanislaus rivers. The O'Shaughnessy Dam, which forms the Hetch Hetchy Reservoir, is the only dam in the County which, if breached, might cause flooding of significance to local inhabited areas within the General Plan area. Figure 4.9-1 shows other dams in the County and their respective inundation areas.

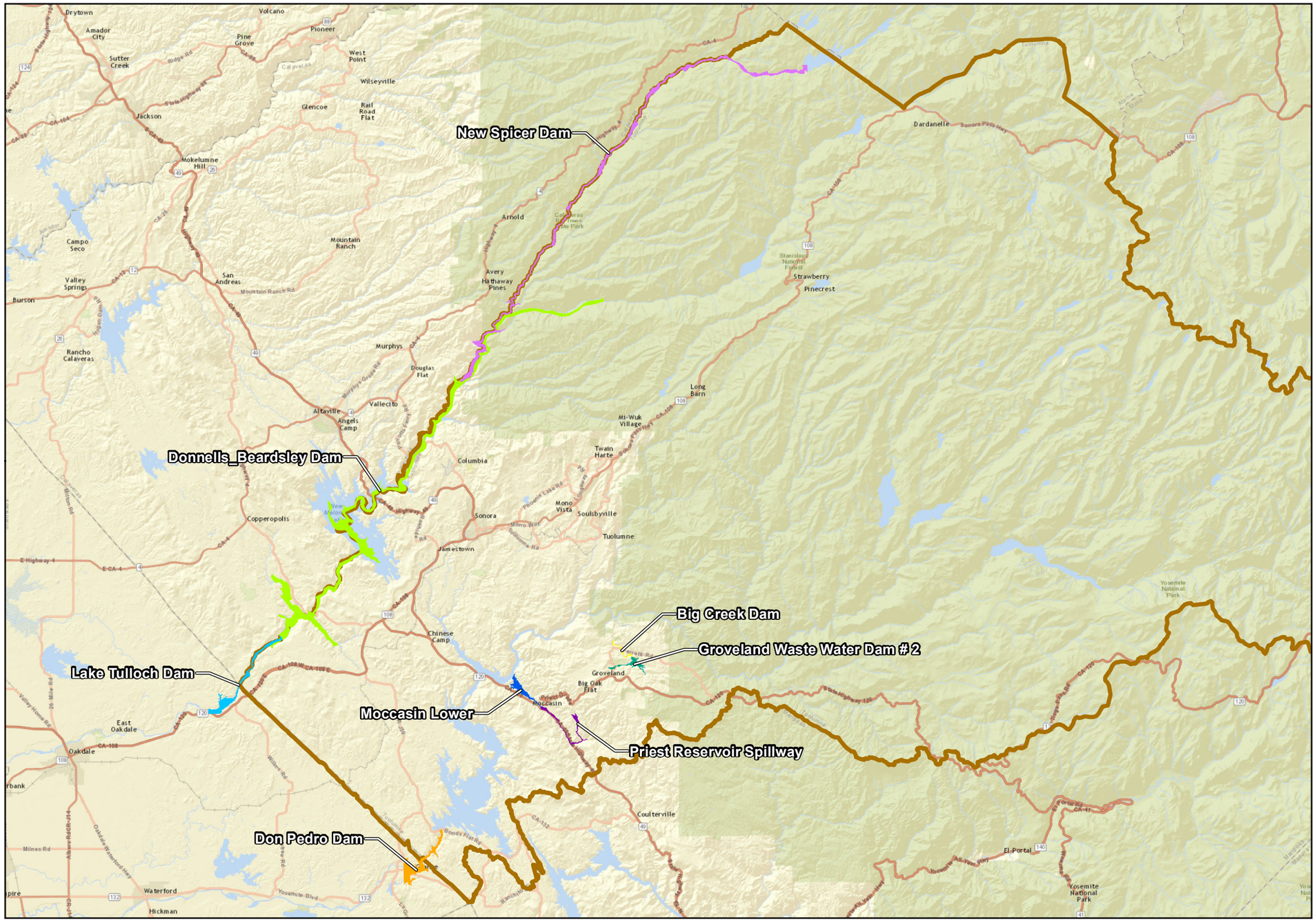
e. Regulatory Framework. Development in Tuolumne County is subject to various local, state, and federal regulations and permits regarding water quality and the use of water resources.

Federal.

Clean Water Act. The primary goals of the Federal Clean Water Act, 33 USC §§ 1251, *et seq.* (CWA) are to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. As such, the CWA forms the basic national framework for the management of water quality and the control of pollutant discharges. The CWA sets forth a number of objectives in order to achieve the above-mentioned goals. The CWA objectives include regulating pollutant and toxic pollutant discharges; providing for water quality which protects and fosters the propagation of fish, shellfish and wildlife; developing waste treatment management plans; and developing and implementing programs for the control of non-point sources of pollution.

The CWA provides the legal framework for several water quality regulations including the National Pollutant Discharge Elimination System (NPDES), effluent limitations, water quality standards, pretreatment standards, anti-degradation policy, non-point source discharge programs, and wetlands protection.

Section 303(d) of the CWA requires identification and listing of water-quality limited or "impaired" water bodies where water quality standards or receiving water beneficial uses are not met. Once a water body is listed as "impaired," total maximum daily loads (TMDLs) must be established for the pollutants or flows causing the impairment. Once established, the TMDL allocates the loads among current and future pollutant sources to the water body. In general, where urban runoff is identified as a significant source of pollutants causing the impairments and is subject to load allocating, the implementation of and compliance with the TMDL total maximum daily loads requirements is administered through a combination of individual Industrial Stormwater Permits, the General Industrial and General Construction Stormwater Permits, and the County of Tuolumne's municipal stormwater NPDES program. The Environmental Protection Agency (EPA) has delegated the responsibility for administration of portions of the CWA to state and regional agencies, including the State of California. Accordingly, the primary regulations resulting from the CWA (i.e., NPDES program) are discussed in the state and local regulation discussions that follow.



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Additional data layer from Tuolumne County, 2015.

Dam Inundation Areas

Figure 4.9-1

Under Section 404 of the CWA, the Department of the Army, acting through the U.S. Army Corps of Engineers, has authority to permit the discharge of dredged or fill material in waters of the U.S. The Army Corps thereby has jurisdiction over the following categories of waters:

- Traditionally navigable waters and adjacent wetlands;
- Non-navigable tributaries of traditionally navigable waters that are relatively permanent, and wetlands that directly abut such tributaries; and
- Other waters that have a significant nexus with traditionally navigable waters.

Proposed activities are regulated through a permit review process (U.S. EPA, 2013). An individual permit is required for potentially significant impacts to jurisdictional waters. Individual permits are reviewed by the Army Corps, which evaluates applications under a public interest review, as well as the environmental criteria set forth in the CWA Section 404(b)(1) Guidelines, regulations promulgated by EPA.

No discharge of dredged or fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment, or (2) the nation's waters would be significantly degraded. Thus, an application for a Section 404 permit must show that steps have been taken to avoid impacts to wetlands, streams and other aquatic resources; that potential impacts have been minimized; and that compensation will be provided for all remaining unavoidable impacts.

State.

Porter-Cologne Water Quality Control Act (California Water Code). The State of California is authorized to administer federal law or state-enacted laws regulating water pollution within the State. The Porter-Cologne Water Quality Control Act (Water Code §§ 13000, *et seq*.) includes provisions to address requirements of the CWA. These provisions include NPDES permitting, dredge and fill programs, and civil and administrative penalties. The Porter-Cologne Act is broad in scope and addresses issues relating to the conservation, control, and utilization of the water resources of the State. Additionally, the Porter-Cologne Act states that the quality of all the waters of the State (including groundwater and surface water) must be protected for the use and enjoyment by the people of the State.

The SWRCB and its nine RWQCBs are agencies within the umbrella structure of the California Environmental Protection Agency (CalEPA). The SWRCB has the principle responsibility for the development and implementation of California water quality policy and must develop programmatic water quality control procedures to be followed by the RWQCBs. The Central Valley RWCQB is the region that regulates water quality permitting in Tuolumne County. Water Code § 13050 defines what is considered pollution, contamination, or nuisance. Briefly defined, pollution means an alteration of water quality such that it unreasonably affects the beneficial uses of water (which may be for drinking, agricultural supply, or industrial uses). Contamination means an impairment of water quality to the degree that it creates a hazard to the public health. Nuisance is defined as anything that is injurious to health, is offensive to the senses, or is an obstruction to property use, and which affects a considerable number of people.

Under Section 13240 of this Porter-Cologne Act, each Regional Board must formulate and adopt water quality control plans, or Basin Plans, for all areas within the region. The Central Valley RWQCB has two Basin Plans: one for the Tulare Lake Basin and one for the Sacramento and San Joaquin River Basins. The San Joaquin River Basin includes the entire area drained by the San Joaquin River, including the Stanislaus and Tuolumne Rivers in Tuolumne County. However, the basin planning area excludes all areas within Tuolumne County.

Discharge Permits. The SWRCB has issued a statewide NPDES General Permit for stormwater discharges associated with construction activities (known as the Construction General Permit [SWRCB Order No. 99-08-DWQ]). Any project that disturbs an area more than one acre requires a Notice of Intent (NOI) to discharge under the Construction General Permit. The Construction General Permit includes measures to eliminate or reduce pollutant discharges through implementation of a Stormwater Pollution Prevention Plan (SWPPP), which describes the implementation and maintenance of best management practices (BMPs) to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the site during construction. The Construction General Permit contains receiving water limitations that require stormwater discharges to not cause or contribute to a violation of any applicable water quality standard. The permit also requires implementation of programs for visual inspections and sampling for specified constituents (e.g., non-visible pollutants). Any construction activities under the project that disturb more than one acre would be covered under the Construction General Permit.

To minimize the impact of stormwater discharges from industrial facilities, the NPDES stormwater program also includes an industrial stormwater permitting component. Operators of industrial facilities are required to have authorization under an NPDES industrial stormwater permit.

The RWQCB issues combined NPDES Permits under the CWA and California Water Code to all point source dischargers of waste to surface waters. To ensure protection of water quality, NPDES Permits may contain effluent limitations for pollutants of concern, pollutant monitoring frequencies, reporting requirements, schedules of compliance (when necessary), mandates for operating conditions, BMPs, and administrative requirements. NPDES Permits apply to publicly owned treatment works (POTWs) discharges, industrial wastewater discharges, and municipal, industrial, and construction site stormwater discharges.

County.

The Tuolumne County Groundwater Management Ordinance (Ord. 2429, Tuolumne County Ordinance Code (TCOC) Chapter 13.20) prohibits groundwater extraction within the County for use outside of County boundaries except by permit.

The Tuolumne County Flood Damage Prevention Ordinance (TCOC Chapter 15.24) aims to minimize public and private losses due to flood conditions within flood prone or flood related erosion areas. The ordinance applies to all areas of special flood hazards within Tuolumne County and includes regulations to:

- Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
  Control filling, grading, dredging, and other development which may increase flood damage; and,
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Section 15.24.150 includes standards of construction for all new construction, substantial improvements, and other proposed new development in all special flood hazard zones.

The Tuolumne-Stanislaus Integrated Regional Water Management Plan (IRWMP), developed in 2013, intended to provide a framework to improve collective understanding and take high-priority actions to collaboratively address the many major water-related challenges/needs and conflicts encompassing the Upper Tuolumne River, Upper Stanislaus River and Upper Rock Creek-French Camp Slough watersheds traversing all of Tuolumne County, eastern Stanislaus County, and Calaveras County to Highway 4 and southwestern Alpine County. These issues include water quality, local water supply reliability, better integration of water and land use management, resource stewardship and ecosystem protection (Tuolumne-Stanislaus IRWM Plan, August 2013).

4.9.2 Impact Analysis

a. Methodology and Significance Thresholds. Assessment of impacts is based on review of County information regarding hydrology and water quality issues. In accordance with the *State CEQA Guidelines*, impacts would be considered significant if development facilitated by the proposed General Plan Update would:

1) *Violate any water quality standards or waste discharge requirements;*
2) *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;*
3) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;*
4) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;*
5) *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;*
6) *Otherwise substantially degrade water quality;*
7) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;*
8) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows;*

9) *Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam;*
10) *Result in inundation by seiche, tsunami, or mudflow.*

Issues related to groundwater supplies (2) are discussed in Section 4.16, *Utilities and Service Systems.* As discussed in Section 4.17 of this EIR, *Less than Significant Environmental Factors*, the proposed General Plan Update would not involve changes to the drainage pattern of the area (3) or result in flooding due to the alteration of a stream or river (4). In addition, Tuolumne County is not at risk from tsunamis, seiches, mudflows (10), or flooding as a result of levee failure (9). Therefore, no impact with respect to these issues would occur and these issues are not discussed further in this section.

b. Project and Cumulative Impacts.

Impact HWQ-1 **Some areas within the County adjacent to waterbodies are located within the 100-year flood zone. These areas are generally not designated for urban development in the proposed General Plan Update and no additional people or structures would be exposed to flood risk as a result of the plan. In addition, with implementation of General Plan policies, impacts related to flooding would be Class III, *less than significant*.**

Flooding as a result of storm events can cause widespread damage to affected areas, and endanger human safety. When development encroaches on floodplains, buildings and vehicles can be damaged or destroyed, while smaller objects can be buried in flood-deposited sediments. Floodwaters can break utility lines, interrupting services and potentially affecting health and safety. Floods may also create health and safety hazards and disruption of vital public services. The secondary effects of flooding are due to standing water, which can result in septic tank failure and water well contamination. Standing water can also damage roads, foundations, and electrical circuits. The extent of damage caused by any flood depends on the topography of the area flooded; depth, duration, and velocity of floodwaters; the extent of development in the floodplain; and the effectiveness of forecasting, warnings, and emergency operations. Encroachment onto floodplains, such as artificial fills and structures, reduces the capacity of the floodplain and increases the height of floodwater upstream of the obstructions.

For the vast majority of Tuolumne County, the 100-year floodplain is directly adjacent to waterways and other water bodies. Most of the major waterways in Tuolumne County are within deeply defined drainage channels, capable of containing flood waters. However, in some areas the drainage channels are less defined and are not capable of containing flood waters. As discussed in section 2.0 *Project Description*, the majority of new development is expected to occur within existing urbanized areas. Development that would occur outside of existing urbanized areas would mostly occur adjacent to the urban boundaries of the plan areas, known as the urban fringe.

A majority of new development would occur within the five Community Plan areas (Jamestown, Columbia, East Sonora, Tuolumne, and Mountain Springs). There are no areas designated by the FEMA Flood Insurance Rate Maps as being within the 100-year floodplain

with the Jamestown Community Plan Area boundary. As such, development that would occur in this area would not be subject to flooding and associated hazards. There is a small waterbody within the Columbia Community Plan Area boundary south of Horseshoe Bend Road that is identified as within the 100-year floodplain. In addition, areas adjacent to the Stanislaus River along the northwestern boundary of the Community Plan Area are within the 100-year floodplain. Within the East Sonora Community Plan Area, the Sonora, Curtis, and Sullivan Creeks run through the Plan Area. Areas within and around Sullivan and Curtis creeks are within the 100-year flood zone. In the Tuolumne Community Plan boundary, there is one area within the 100-year floodplain south of Tuolumne Road along Turnback Creek. Three perennial streams run through the Mountain Springs Community Plan Area including the Sullivan Creek, Flores Creek, and Curtis Creek. Areas along the Sullivan Creek and Curtis Creek are located within the 100-year floodplain although the potential for flooding is limited, due to the minimal size of these streams and the generally rugged relief of the area.

The Community Plans include goals and policies for protection of riparian corridors and identify the riparian corridors as community open space, private open space, or parks and recreation. Therefore, development in these areas would not occur and the potential for flood damage to new structures associated with the proposed General Plan Update is low. Nonetheless, any development within the 100-year flood zone would be subject to the County's policies as set forth in the proposed General Plan Safety Element and the community plans, which would ensure that people or property are not subject to flood risks. In addition, new development would be subject to the provisions of the County's Flood Damage Prevention Ordinance (Chapter 15.24 of the TCOC) which would protect new development from flood hazards. Therefore, impacts related to flooding caused by storm events would be less than significant.

The General Plan Update's Safety Element and Water Resources Element include the following policies, the implementation of which would reduce potential impacts related to flood risk.

Goal 6.H	*Protect new and existing structures and land uses from flood hazards in order to minimize loss of life, injury, damage to property, and economic and social dislocations and manage floodplains for their natural resource value.*
Policy 6.H.1	*Reduce the potential for damage to property within the 100 year floodplains as designated on the Federal Emergency Management Agency, Flood Insurance Rate Maps and other areas prone to flooding due to rain or dam failure, through limitations on land use.*
Policy 6.H.2	*Work to solve flood control problems in areas where existing development has encroached into a floodplain. Encourage property owners with existing structures within areas subject to flooding, whether identified on the Flood Insurance Rate Maps or not, to conform to the requirements of Chapter 15.24 of the Tuolumne County Ordinance Code, the Flood Damage Prevention Ordinance.*
Policy 6.H.4	*Minimize the risk from flood hazards through land use planning and the avoidance of incompatible structural development in floodplains. Utilize regulatory methods of flood control, such as designating identified*

floodplains and drainage easements as Open Space, where possible, rather than construction-related methods of flood control. Regulatory methods reduce the need for flood control projects, minimize losses in areas where flooding is inevitable, and attempt to notify those who own property in flood hazard areas of the risks and that they should assume responsibility for their actions.

Policy 6.H.5 *Continue to require evaluation of potential flood hazards prior to approval of development projects and require on-site mitigation to minimize off-site flows. Proponents of new development shall submit accurate topographic and flow characteristics information and depiction of the 100-year floodplain boundaries under fully-developed, unmitigated conditions.*

Policy 6.H.6 *Attempt to maintain natural conditions within the 100-year floodplain of rivers and streams in order to maintain stream capacity except under the following circumstances:*

a) Where work is required to maintain the stream's drainage characteristics and where such work is done in accordance with the Tuolumne County Water Quality Plan, County Flood Damage Prevention Ordinance, California Department of Fish and Wildlife regulations, and Clean Water Act provisions administered by the U.S. Army Corps of Engineers; or

b) When facilities for the treatment of development generated runoff can be located in the floodplain provided that there is minimal destruction of riparian vegetation, and such work is done in accordance with the County Flood Damage Prevention Ordinance and California Department of Fish and Wildlife regulations.

Policy 6.H.7 *Continue to make information available to property owners and residents living in floodplains.*

Policy 6.H.8 *Prohibit the construction of facilities essential for emergencies and large public assembly in the 100-year floodplain, unless the structure and access to the structure are free from flood inundation.*

Policy 6.H.9 *Continue to consult with local, regional, state and federal agencies to achieve adequate flood protection. Cooperate with the Tuolumne Utilities District, surrounding jurisdictions, the City of Sonora, and other public, state and federal agencies in planning and implementing regional flood control improvements.*

GOAL 19.C *Provide for recreational use in water resource areas.*

Policy 19.C.1 *Permit recreational uses in flood zones if it can be demonstrated that the recreational use will not cause additional flooding or increase the potential for flood damage.*

The *Jamestown Community Plan* includes the following policy, the implementation of which would reduce potential impacts related to flood risk.

JCP Policy 14.F.8 *Preserve natural resource and wildlife habitat areas, reduce exposure to risk in hazardous areas, and enable recreational opportunities to be maintained or provided by designating hazardous areas, such as floodways, and biological and water resources areas as Open Space.*

The *Tuolumne Community Plan* includes the following policy, the implementation of which would reduce potential impacts related to flood risk.

TCP Policy 17.F.9 *Discourage construction within floodplains.*

With adherence to existing regulations and to General Plan goals and policies, impacts related to flooding would less than significant.

Mitigation Measures. None required beyond implementation of the existing regulatory framework and proposed General Plan policies.

Significance after Mitigation. Impacts would be less than significant.

Impact HWQ-2 **Portions of the County are located within an identified dam inundation hazard. There is potential to expose people and structures to associated dam inundation hazards. However, the proposed General Plan Update would not facilitate development in dam inundation areas. Therefore, impacts related to dam inundation would be Class III, *less than significant.***

Figure 4.9-1 shows potential dam inundation areas in Tuolumne County. The 2004 Tuolumne County Multi-Jurisdictional Hazard Mitigation Plan (HMP) includes a vulnerability assessment for dam failure. The assessment found that 1,015 parcels fall within a dam inundation area and of those parcels, 458 are developed. Only one known privately-owned high-value structure falls within the footprint of any of the probable inundation areas below any of the dams in Tuolumne County. That private residence is located adjacent to the Tulloch Reservoir and within the inundation areas of the dams located higher in the watershed. Of the other critical facilities and high risk structures such as schools, hospitals, and public safety facilities, only the fire station at Moccasin appears to be within the dam inundation area below the Moccasin Reservoir. Multiple bridges and culverts on County roads and State Highways lie within the inundation zones should there be any dam failures. These transportation facilities and associated roadways would likely receive severe damage should a dam fail above the road. No known hazardous materials sites have been identified within any of the mapped dam inundation areas. The assessment concluded that the extent of that damage from any dam failure would not be great due to the small areas possibly inundated, and the assumption that such an event is unlikely to happen.

The proposed General Plan Update would facilitate growth within existing urban areas and in the urban fringe. The communities are not within a dam inundation area shown on Figure 4.9-1. Therefore, the proposed General Plan Update would not introduce populations of people into dam inundation zones that are currently unpopulated. In addition, the proposed General Plan

includes a policy to review new development with dam inundation areas and restrict development if it presents a direct threat to human life. The General Plan also contains implementation programs related to disaster planning for potential dam failure. The General Plan Safety Element includes the following policy and implementation programs to address hazards related to dam inundation.

Policy 6.H.3	*Review all projects proposed within potential inundation areas due to dam failure as identified on the dam failure inundation maps designated by the Office of Emergency Services (OES) and evacuation plans on file with the County Office of Emergency Services for that area. If a project presents a direct threat to human life, appropriate actions shall be taken, including restriction of development in the subject area.*
Implementation Program 6.B.a	*Address Hazards in Disaster Plans. Review contingency plans for major disasters and emergencies to verify that the potential for damage and destruction due to earthquakes and geologically induced dam failure with accompanying flooding continues to be addressed.*
Implementation Program 6.H.e	*Emergency Plans. Regularly update the Emergency Operations Plan For Tuolumne County which addresses dam failures in the Flood Annex. In the event of a dam failure, the Emergency Operations Plan refers to the Emergency Action Plan of the owner agency of the dam, The County will notify and assist in evacuation along federally designated flood plains.*

Therefore, with implementation of General Plan policies and implementation programs, impacts related to dam inundation would be less than significant.

Mitigation Measures. None required, as no significant impacts were identified.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact HWQ-3 **Development facilitated by the proposed General Plan Update would incrementally increase the amount of impervious surfaces within the County, resulting in an increase in watershed runoff which could degrade water quality. In addition, point and non-point sources of contamination could affect surface and groundwater quality. However, compliance with existing regulations and implementation of proposed General Plan policies would result in Class III, *less than significant*, impacts.**

New sources of water pollutants resulting from the proposed General Plan Update may include point sources such as an industrial site and non-point sources such as stormwater runoff or runoff from a construction site. Each of these potential sources is discussed below.

Point Sources. Discharge of pollutants from any point source is prohibited unless the discharge is in compliance with a NPDES Permit issued by the RWQCB. Therefore, with compliance with existing federal and state requirements, any new point sources facilitated under the proposed General Plan Update would not create additional water quality impacts.

Stormwater Runoff. Water quality impacts from potential future projects are directly related to specific site drainage patterns and stormwater runoff. Development that could be facilitated by the proposed General Plan Update would incrementally increase development intensity in portions of the County, thereby increasing the amount of impervious surface area within the watershed. This could incrementally increase surface runoff into area drainages. As rainwater passes over land, contaminants become suspended within the flow. In particular, stormwater runoff from landscaped areas, roadways and parking lots contains various pollutants associated with motor vehicles, including petroleum compounds, heavy metals, asbestos, and rubber, as well as fertilizers and pesticides from landscaped areas. Urban runoff can have a variety of negative effects. Oil and grease contain a number of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Heavy metals such as lead, cadmium, and copper are the most common metals found in urban storm water runoff. These metals can be toxic to aquatic organisms, and have the potential to contaminate drinking water supplies. With no prior treatment of stormwater runoff, any pollutants retained from the impervious roadway surfaces would directly enter the surface water bodies in the County. The additional runoff due to increased impervious surfaces could further contribute to degraded surface water quality for water bodies listed in Table 4.9-1.

The majority of new development facilitated under the proposed General Plan Update would occur in existing communities where impervious surfaces already occupy a portion of the land. Development in large undeveloped areas would not increase under the proposed General Plan Update, as the plan intends to implement the Distinctive Communities Growth Scenario which focuses development within existing communities. Therefore, the proposed General Plan update would not substantially increase the amount of impervious surfaces within the County. In addition, any future development in these areas would be subject to all federal and state regulations regarding impervious surface and stormwater runoff, as described in subsection 4.9.1(f). Further, the proposed General Plan Update and Community Plans contain policies that reduce stormwater runoff and avoid water pollution from stormwater runoff. Therefore, the proposed General Plan Update would not create or contribute runoff water which would

exceed the capacity of stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

Construction Runoff. Construction activities could also result in the pollution of natural watercourses or groundwater. The types of pollutant discharges that could occur as a result of construction include accidental spillage of fuel and lubricants, discharge of excess concrete, and an increase in sediment runoff. As stated previously, any project that disturbs an area more than one acre would be subject to the Construction General Permit and be required to eliminate or reduce pollutant discharges through development of a SWPPP and implementation BMPs. This would control the discharge of pollutants, including sediment, into local surface water drainages. Impacts would be less than significant.

The General Plan Update's Water Resources Element includes the following goals, policies, and implementation programs, the implementation of which would reduce potential impacts related to water quality.

Goal 19.B	*Protect and improve the quality and quantity of the County's water resources, while protecting the rights of the land owner.*
Policy 19.B.1	*Protect the quality of the County's water resources by supporting the efforts of local districts to maintain infrastructure and cross-connect sewer systems and ensuring Tuolumne County's development standards are adequate to protect surface and groundwater resources from contamination.*
Policy 19.B.4	*Encourage the conservation of water resources in a systematic manner that is sensitive to the maintenance of water quality, natural capacities, ecological values, and consideration of the many water related needs of the County.*
Policy 19.B.7	*Recognize that clean water is essential to the public health, safety and welfare, fosters economic development and job creation, protects the environment, maintains fish and wildlife, and supports recreation.*
Policy 19.B.8	*Encourage water resources to be protected from pollution, conserved, and recycled whenever possible to provide for continued economic, community, and social growth.*
Policy 19.B.9	*Promote improved watershed health and improved water quality and water quantity yields of the watersheds in Tuolumne County.*
Implementation Program 19.B.a	*Tuolumne County Water Quality Plan. Consider updating the Tuolumne County Water Quality Plan, subject to receiving funding, to facilitate a consistent, fair and cost-effective approach to water resource mitigation and encourage and support the restoration of degraded riparian areas through public education programs demonstrating the value of healthy riparian habitats in protecting water quality, and provide for permit streamlining while conserving important water resources.*

Implementation Program 19.B.b — *Land Uses Adjacent to Public Drinking Water Infrastructure. Consider amending the Tuolumne County Ordinance Code to provide for local source water protection and wellhead protection programs, such as setbacks, to protect the sources of drinking water supplies. In the interim, avoid designating urban land uses (HDR, MDR, LDR, NC, GC, HC, and MU) and industrial land uses (BP, LI, and HI) on the General Plan land use diagrams for property located directly above public drinking water reservoirs and open (uncovered or unpiped) public drinking water conveyances (ditches, flumes, and canals) where discharge or contamination is likely to occur, unless public water and sewer are available or can be developed, or impacts can be mitigated.*

Implementation Program 19.B.j — *Implement Grading and Surface Runoff Standards. Implement grading and surface runoff standards, such as retention and detention, permeable surfaces and recharge, necessary to protect water resources in compliance with State and Federal water quality regulations and with the County's water conservation program referenced in Implementation Program 19.B.a.*

The *Jamestown Community Plan* includes the following implementation program which reduces potential impacts related to water quality.

JCP Implementation Program 14.F.b — *Require Filtration of Surface Runoff Entering Woods Creek: Require as a condition of approval of discretionary entitlements for new development that surface runoff from the development be filtered through sedimentation basins, or similar devices, as needed, prior to discharge into downstream drainages to minimize degradation, related to the water quality and quantity, of downstream water bodies.*

The *Columbia Community Plan* includes the following implementation program which reduces potential impacts related to water quality.

CCP Implementation Program 15.E.f — *Water Quality and Quantity of Runoff: Require as a condition of approval of discretionary entitlements for new development that surface runoff from that development be filtered through sedimentation basins, or similar devices, as needed, prior to discharge into downstream drainages to minimize degradation, related to the water quality and quantity of downstream waterbodies.*

The *East Sonora Community Plan* includes the following implementation program which reduces potential impacts related to water quality.

ESCP Implementation Program 16.C.d — *Require Filtration of Surface Runoff. Require as a condition of approval of discretionary entitlements for new development that surface runoff from that*

development be filtered through sedimentation basins, sand/oil separator or similar devices prior to discharge into Sullivan, Sonora and Curtis Creeks to minimize degradation of their waters.

The *Mountain Springs Community Plan* includes the following policy and implementation programs which reduce potential impacts related to water quality.

MSCP Policy 9.B.2 — *Promote best water management practices for the reduction of stormwater runoff.*

MSCP Implementation Program 9.B.2.a — *Utilize stormwater bio-swales that filter stormwater through the use of natural grasses, sediment and other features that provide a more natural setting or other such systems within Mountain Springs with the intent of reducing sediment and pollutants from entering the natural drainage systems.*

MSCP Implementation Program 9.B.2.b — *Use of drop inlets (D.I.s) or other devices with a filter system may be installed to prevent debris, refuse and other sediment infiltration throughout the Community.*

MSCP Implementation Program 9.B.2.c — *The National Pollutant Discharge Elimination System (NPDES) permit program shall be followed, and utilize Best Management Practices (BMP) to minimize pollutant runoff during a storm occurrence throughout Mountain Springs.*

The *Tuolumne Community Plan* includes the following implementation program, the implementation of which would reduce potential impacts related to stormwater runoff.

TCP Implementation Program 17.G.g — *Upgrade Stormwater Facilities – Funding: Seek funds to improve stormwater drainage facilities throughout the Tuolumne Planning Area.*

With adherence to existing regulations and to General Plan goals, policies and programs, impacts related to stormwater runoff volume and to water quality would be reduced to a less than significant level.

Mitigation Measures. None required, as no significant impacts were identified.

Significance after Mitigation. Impacts would be less than significant without mitigation.